

AMSynths

AM8012 2600P VCF User Manual 24dB/Octave Low Pass Filter

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AM8012 - ARP 2600P VCF

1 Welcome

Thank you for purchasing an AMSynths product.

The AM8012 analog filter module has been designed and hand built in the UK to exacting quality standards. The module uses high quality electronic components and particular attention has been paid to the quality of the audio signal path, stability of the control circuits and the long term life of the product.

This user manual explains the basic functions of the module, as well the historic background to its development, how to install the module and the warranty and support.

AMSynths modules are produced in low volumes, with each module having a unique holographic serial number and a certificate of ownership. You own a rare and beautiful analog synthesizer module that will provide many years of amazing sounds and musical inspiration.

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2 Front Panel

AUDIO INPUTS:

InA, InB

CONTROL INPUTS:

CV1, CV2, CV3

AUDIO OUTPUTS:

Out

CONTROL POTS:

InA (white)

InB (white)

CV1 (grey)

CV2 (grey)

FREQ (blue)

FINE (blue)

Q (red)

KYBD (blue)

The serial number is on a small silver holographic sticker on the inside of the front panel.

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3 Module Description

The AM8012 is a clone of the ARP 4012 filter in the ARP 2600P analog synthesizer. This is a 4-pole 24dB low-pass filter constructed around a traditional "Moog" transistor ladder. It has a wide cutoff range between 0 – 35 kHz and procures the typical "fat" filter sounds. It appeared in early ARP 2600 synthesizers around 1971, before Moog took legal action. The circuit is a refinement of the ARP 1006 filter in the 2500 Modular synthesizer, which is very similar.

The original ARP design uses 8 pairs of matched and thermally coupled TZ-81 and TZ-581 transistor pairs, plus a dual FET. There is also a LM301 Op Amp in the final signal path and temperature compensation is achieved with a 1K87 tempco resistor, next to the exponential converter.

The AM8012 Module has an improved and upgraded design; matched THAT transistor arrays, standard 2N3904/3906's, high quality Polypropylene ladder capacitors, the original dual FET (2N3958) and an upgraded differential output Op Amp. The changes make for a more reliable and better sounding filter.

The external design replicates the "look and feel" of the ARP Odyssey Mk1 with slide potentiometers and coloured caps.

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4 Connections & Controls

The two uppermost jack sockets INA and INB are for connecting audio signals into the input side of the filter, these signals are mixed together. The level of each audio signal can be varied from nil to maximum using the front panel slide potentiometers InA and InB.

The middle jack sockets CV1, CV2 and CV3 are for connecting modulation control voltages into the filter. These signals vary the cut off frequency of the filter, with the front panel slide potentiometers adjusting the amount of modulation, except for CV3 which is directly connected to the filter.

The lowest jack socket marked Out is the audio signal output of the filter and it is typically connected to a VCA.

The Frequency slide potentiometer varies the cut off frequency of the low pass filter. At the minimum setting the filter will cut off all frequencies with no audio output and at the maximum setting the filter will pass all frequencies.

The Fine slide potentiometer enables small change in cutoff frequency and is used when adjusting the frequency of the filter when it is self oscillating.

The Q slide potentiometer adjusts the resonant peak of the filter from a minimum setting of no resonance, through subtle resonance enhancement to a maximum setting when the filter will break into self oscillation.

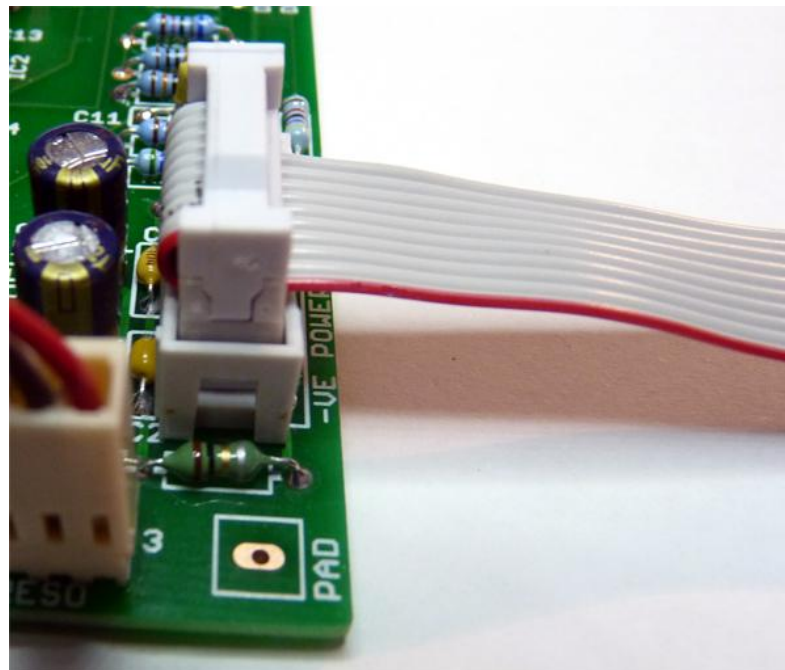
The Kybd slide potentiometer varies the amount by which the keyboard note voltage on the Doepfer bus varies the cutoff frequency of the filter, from zero to maximum. This enable the note value ypu play to determine cutoff.

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5 Configuration

The AM8012 module occupies 16HP of EuroRack space and is fully compatible with various Euro Rack cases, especially Doepfer. The height of the panel is 128.5 mm and there are four mounting holes at each corner of the module. Four 3mm diameter mounting screws are included to enable you to securely mount the module into your rack.

The module should be connected to the 12V Doepfer style power bus within your case using the included AMSynths multi-way power cable. Ensure the power is OFF before connecting the module and BE VERY CAREFUL to ensure that the power connector to the bus is connected with the red stripe of the cable lined up with -12V (negative 12V). This is standard Euro Rack power connection but be VERY CAREFUL to get this right! Damaged modules will not be replaced under warranty when the power has been misconnected. The power socket on the AMSynths module is keyed so that the cable can only be inserted the correct way.



6 Warranty & Support

Repairs resulting from a defect of the module or its construction process are covered by a one year warranty, with the customer paying transit costs to AMSynths in the UK.

Damage to the module resulting from incorrect power supply voltages, backwards power cable connection, abusive usage, fluid encroachment or out-of specification voltage input are not covered by the warranty and normal service rates apply.

AMSynths implies and accepts no responsibility for undesirable harm to a person or apparatus caused through operation of this device.

If you have questions regarding the use of this module or you need technical support please contact AMSynths via email at sales@amsynths.co.uk.

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7 Specifications

Power Supply:

+12V, GND and -12V standard Doepfer 10 pin connector
RED stripe on power cable is -12V (NEGATIVE 12V)

Current consumption:

TBD

Dimensions:

128.5mm (Height) x 70.8 mm (Width)

Euro Rack Size:

16HP/TE

Panel:

2mm machined aluminum with colour photographic print.

Frequency

20 Hz to 20 kHz

Resonance

0 to self oscillation

Output Impedance:

1k ohm

Input Impedance:

100k ohm